

The drawings are objected to because of hatching and for failing to comply with 37 C.F.R. § 1.84(p)(4) as set forth in the Official Action.

In response, a Request for Approval to Amend the Drawings is being filed concurrently herewith in which reference character “4a” is deleted from Figures 1 and 7; the hatching for component 25 is deleted from Figures 2 and 3; and hatching appropriate for --resin--, --silicone rubber--, --elastic--, and --metal-- materials, respectively, has been substituted for the hatching shown in Figure 4. It is respectfully submitted that the objections to the drawings have been overcome and that no new matter has been added.

Claims 1 through 4 remain pending in the application. Claims 1 through 4 have been amended to even more succinctly define the invention and/or to improve their form. It is respectfully submitted that no new matter has been added. Claim 1 is the only independent claim present in the application.

Claims 1 through 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,250,999 (Kimura, et al.) in view of U.S. Patent No. 5,331,385 (Ohtsuka, et al.). The rationale underlying the rejection is succinctly set forth in the Official Action. The rejection is respectfully traversed.

A conventional image forming apparatus uses a heating apparatus for fixing a toner image formed on a recording material. The heating apparatus may include a pressurizing roller in pressure contact with a rotation heating member. The pressurizing roller may be provided with a heat-resistant body on which a resin surface layer is provided because of its high releasing property. However, the resin surface layer often acts as an electrical insulator. When a dry recording paper, which has a high electric resistance, passes the pressurizing roller, the surface of the roller is negatively charged due to friction

with recording paper. If the toner on the recording paper is negatively charged, it repulses a triboelectrification potential on the surface of the pressurizing roller. This results in a scattered or offset image.

An OHT recording sheet has a high insulating property in a thickness direction but a relatively low surface resistance. Accordingly, it acts like an electrical condenser. When an OHT recording sheet is used as a recording material, charges on the back surface of the OHT, which the pressurizing roller contacts, may flow to cause an offset image. If negatively charged toner is used, the back surface of the OHT is subject to a positive transfer bias when it passes through a transfer portion. Then, the negative charges are reduced on the surface of the OHT and electrostatically balance with positive charges on the back surface of the OHT. If the OHT contacts the pressurizing roller, the positive charges on the back surface of the OHT will flow to ground. Accordingly, the front surface of the OHT is largely occupied by negative charges resulting in a weak holding force and an offset image.

Applicants have provided an apparatus suitable for forming images on paper recording material as well as OHT recording material, which is selectively operable in a normal mode for use with paper recording material and a resin sheet mode for use with a resin recording material.

Amended Claim 1 calls for an image forming apparatus that includes a transfer member which transfers an image from the image bearing member to a recording material. A fixing means fixes the transferred image onto the recording material and includes a heating member and back-up roller, which forms a nip in cooperation with the heating member. The back-up roller includes a conductive material containing layer. The

apparatus is selectively operable in a normal mode for a case in which the recording material is paper and in a resin sheet mode for a case in which the recording material is a resin sheet. When the resin sheet mode is selected, a voltage applied to the transfer member is lower than that of the case in which the normal mode is selected so that an absolute value of a front surface potential of the resin sheet becomes small.

An inventive feature recited in amended Claim 1 is that a voltage applied to the transfer member for forming an image on a resin sheet is lower than a voltage applied to the transfer member for forming an image on a paper sheet so that an absolute value of a front surface potential of the resin sheet becomes small. According to this feature, the occurrence of triboelectrification on the roller is reduced and the occurrence of image offset on a resin sheet is avoided.

Kimura, et al. discloses an image forming apparatus including a switching control means 21, which controls a speed control means 23 and a voltage switch means 25. In an OHT mode, a transfer voltage is applied to a transfer roller 10 is reduced and the process speed is decreased. The process speed is decreased in order to increase the amount of heat transferred to an OHP sheet. The transfer voltage is also decreased to a voltage corresponding to the reduced process speed. See column 4, lines 40 through 54; see especially lines 53 and 54). In Kimura, et al., it cannot be understood that the front surface potential of the OHP sheet in the OHP sheet mode is different from that in any other mode. It is respectfully submitted that Kimura, et al. fails to disclose or suggest the above-mentioned features of the claimed invention.

Ohtsuka, et al. is merely cited for disclosing a pressurizing roller having a conductive material containing layer. However, Ohtsuka, et al. fails to disclose or suggest the above-noted deficiencies of Kimura, et al. *vis-á-vis* amended independent Claim 1.

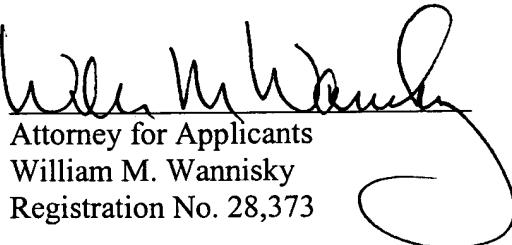
In view of the foregoing, it is respectfully submitted that amended independent Claim 1 is allowable over the cited art whether taken individually or in combination.

Claims 2 through 4 depend directly from Claim 1 and are allowable by virtue of their dependency and in their own right for further defining Applicants' invention. Individual consideration of the dependent claims is respectfully requested.

It is respectfully submitted that the application is in condition for allowance. Favorable reconsideration and early passage to issue of the present application are respectfully submitted.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our New York office at the address shown below.

Respectfully submitted,



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**VERSION WITH MARKINGS SHOWING CHANGES MADE TO
SPECIFICATION**

The paragraphs starting at page 1, line 14 and ending at page 2, line 14 have been amended, as follows.

--An electrophotographic image forming apparatus is an example of such an image forming apparatus. With the electrophotographic image forming apparatus, an unfixed toner image corresponding to target image information is formed and bore [born] on an image bearing member such as an electrophotographic photosensitive body by an image forming process using a heat-fixing visualizing agent (toner). The toner image is transferred by a transferring apparatus from the image bearing member onto a recording material, and the recording material having undergone the transfer of the toner image is introduced into a heating apparatus (heat-fixing apparatus), whereby the toner image is subject to a heat-fixing treatment as a permanently fixed image to be discharged as an image formed object (copy, print).

As the transferring apparatus used in such an image forming apparatus, a transferring apparatus of a noncontacting [non-contacting] electrostatic transfer method is often used according to the recent tendency to eliminate ozone. The transferring apparatus of the noncontacting [non-contacting] electrostatic transfer method is for applying a predetermined transfer bias from a power source to a transfer member such as a transfer roller located on a back side of a recording material, thereby attracting a toner image from

an image bearing member with an electric force and transferring it onto the recording material.--

The paragraph starting at page 2, line 24 and ending at page 3, line 12 has been amended, as follows.

--A pressurizing roller as a pressurizing member used in the above-mentioned heating apparatus is often provided with a heat-resistant elastic body such as silicone rubber on a core metal, which is supporting body and has rigidity and further, provided with a fluorocarbon resin layer, if necessary. The heat-resistant elastic body is required for its function as a part constituting the rotational heating member and the press-contacting nip portion. The surface layer may be provided for the purpose of improving a releasing property in order to avoid stains when adhesion and deposition of dirty toner or recording material components caused by offset or the like on the side of the rotational heating member are serious on the surface of the pressurizing roller.--

The paragraph starting at page 10, line 17 and ending at page 10, line 23 has been amended, as follows.

--The recording material P with an unfixed toner image borne [born] on its surface by the transfer is separated from the surface of the photosensitive drum and conveyed to the fixing apparatus 11 along the conveying guide 10. In the fixing apparatus

11, the unfixed toner image is heated and pressurized to be fixed on the surface of the recording material.--

The paragraph starting at page 14, line 20 and ending at page 15, line 9 has been amended, as follows.

--Fig. 3 is a schematic view showing a structure of layers of the fixing film 25. The fixing film 25 of this embodiment has a three-layer structure. An innermost layer is a base layer 25c, which [takes] has a mechanical property such as torsion strength and smoothness and is made of a resin such as polyimide. The next layer is a conductive primer layer 25a. The conductive primer layer 25a is a conductive layer in which conductive particles such as carbon black are dispersed and whose resistance is reduced, and assumes a role of an adhesive for joining a third layer 25b and the base layer 25c. An outermost layer is the top layer 2b. The top layer 25b is designed with a resistance value and a film thickness that are matched to property of toner used for the image forming apparatus and conditions for constructing the image forming apparatus.--

The paragraph starting at page 15, line 17 and ending at page 15, line 22 has been amended, as follows.

--As the resin layer 26d, it is sufficient to provide a fluorocarbon resin layer or the like when high releasing property is required for the pressurizing roller 26 or, if

necessary, to provide a plurality of resin layers when a surface property or the like is adjusted.--

The paragraph starting at page 20, line 16 and ending at page 21, line 8 has been amended, as follows.

--When a recording material is an OHT, which [since the OHT] has a high resistance, scattering of a toner image tends to occur if a transfer bias is small. However, since an image formed on the OHT is recognized by the human eye [eyes] when it is projected by a projector, a little scattering of an image is hardly recognized by the human eye [eyes]. Thus, a slight margin may be allowed for the lower limit value of the transfer bias. Nevertheless, since a significant reduction of the transfer bias leads to scattering of an image at an unacceptable level even on the OHT, it is necessary to appropriately set the transfer bias according to an ability of a transferring apparatus of the image forming apparatus. Thus, an output of the transfer bias in the OHT mode is set at one third of the transfer bias [that] in the normal operation. However, if the transfer bias in the OHT mode is set in the range of 3% to 80% of that of the plain paper mode as described above, scattering of an image can be kept with an appropriate level when the OHT is used.--

VERSION WITH MARKINGS SHOWING CHANGES MADE TO ABSTRACT

The Abstract of the Disclosure section starting at page 27, line 2 and ending at page 27, line 13 has been amended, as follows.

--The image forming apparatus has an image bearing member for transferring an image from the image bearing member to a recording material, a fixing device for fixing an image onto the recording material, the fixing device having a heating member and back-up roller for forming a nip in cooperation with the heating member. In the image forming apparatus, a normal mode for a case in which the recording material is paper and a resin sheet mode for a case in which the recording material is resin, and wherein when the resin sheet mode is selected a voltage applied to said transfer member is lower than that of the case in which the normal mode is selected so that an absolute value of a front surface potential of the resin sheet becomes small [the back-up roller has a conductive material containing layer, and a voltage applied to the transfer member when the recording material is a resin sheet is lower than a voltage applied thereto when the recording material is paper].--

VERSION WITH MARKINGS SHOWING CHANGES MADE TO CLAIMS

1. (Amended) An image forming apparatus comprising:
an image bearing member;
a transfer member for transferring an image from said image bearing
member to a recording material;
fixing means for fixing the transferred [an] image onto the recording
material, said fixing means including a heating member and back-up roller for forming a
nip in cooperation with said heating member;
wherein said back-up roller includes [has] a conductive material containing
layer,[; and]
wherein said apparatus is selectively operable in a normal mode for a case
in which the recording material is paper and in a resin sheet mode for a case in which the
recording material is a resin sheet, and
wherein a voltage applied to said transfer member when the resin sheet
mode is selected is lower than a voltage applied to said transfer member when the normal
mode is selected so that an absolute value of a front surface potential of the resin sheet
becomes small [wherein a voltage applied to said transfer member when the recording
material is a resin sheet is lower than a voltage applied thereto when the recording material
is paper].

2. **(Amended)** An image forming apparatus according to claim 1, wherein the voltage applied to said transfer member when the [recording material is a] resin sheet mode is selected is 3% to 80% of the voltage applied to said transfer member [thereto] when the normal mode is selected [recording material is paper].

3. **(Amended)** An image forming apparatus according to claim 1, wherein a resistance value of said conductive material containing layer [of said back-up roller] is equal to or less than 10^{13} Ω/sq in terms of a surface resistance or equal to or less than 10^{11} Ωcm in terms of a volume resistance.

4. **(Amended)** An image forming apparatus according to claim 1, wherein said back-up roller includes [has] an elastic layer and a surface resin layer, and at least one of said elastic layer and said surface resin layer is said [contains the] conductive material containing layer.